

Serial Nr.: 10/620,783
Art Unit: 2873

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AMENDMENTS TO THE SPECIFICATION:

Pages 1-2, amend paragraph [0004] as:

[0004] The use of a water insoluble dye in the soft lens to alleviate the aforementioned shortage is proposed in U.S. Pat. No. [[Nos.]] 4252421. The tinted lens is prepared by heat curing hydrophilic lens forming monomers with the presence of the water insoluble phthalocyanine dye such as the copper phthalocyanine. The phthalocyanine dye is entrapped in the finished lens and believed to be stable at a maximal hydration content of 35.7%. Unfortunately, this water insoluble phthalocyanine dye still can leach out of the lens with the use of the hydroxyethyl methacrylate (HEMA) as the hydrophilic comonomer and with a water content of 40%. Moreover, the leaching problem may worsen with greater water content.

Page 2, amend paragraph [0005] as:

[0005] The use of copper phthalocyanine pigment (Color Index Pigment Blue 15) to prepare a tinted contact lens is also disclosed in U.S. Pat. No. [[Nos.]] 6149842. The copper phthalocyanine pigment is firstly dispersed in an aqueous solution containing the polyvinyl alcohol (PVA) as a dispersing agent, and then mixed with the crosslinkable PVA precursor and subsequently photopolymerized in the mold to form the lens. No detail in performance of this dye in the as-formed lens is disclosed. As described previously, the leaching occurred at large water content is a potential problem.

Page 2, amend paragraph [0006] as:

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[0006] A similar concept is disclosed in U.S. Pat. No. [[Nos.]] 5516467 in which a vat dye (for example, C. I. Vat Blue 6) is converted to a leuco compound and dissolved in the hydrophilic N,N-dimethyl acrylamide monomer to prepare a tinted monomer solution. Then this solution is polymerized with other constituents under heat to form the lens and subsequently boiled to convert the solubilized leuco compound into an insoluble vat dye. Although the vat dye is not covalently bonded with the lens forming materials, it is reported to have a great stability and does not fade after 200 hours in the boiling water. However, the fixed vat dye may again be converted to the soluble leuco compound under a suitable alkaline condition and be unevenly reacted under an acid environment.

Pages 2-3, amend paragraph [0007] as:

[0007] The other method for imparting color to a contact lens is to coat the finished lens by printing or transfer printing method. Basically, this method usually applies coloring ink containing solvent-based colorant to the lens with a silicone rubber pad. The transferring method is questionable because it could not give an unblemished, solid covering of colorant on the dry lens surface. Many attempts have been suggested to solve this problem. Some propose to use multiple transfer printing steps to coat mottled color dots onto the lens surface. Some apply pigment/monomer suspension to the mold that stamped or printed with specific geometries and spacing, and then form the tinted lens with the conventional spin casting technique as disclosed in U. S. Pat. No. [[Nos.]] 4640805. Despite the ease of the blemish defect, all these modified methods suffer the potential risk of colorant migration during autoclave sterilization because of using the non-covalently bonded dyes. As a result, the reactive tinting dye that can be

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copolymerized with lens materials is preferred to prevent leaching of the dye from the lenses during various service environments.

Page 3, amend paragraph [0008] as:

[0008] A reactive dye used for preparing the transfer printing ink to remedy the previous migration shortage is disclosed in U. S. Pat. No. [[Nos.]] 5352245. The patent proposes using a reactive dye, e.g., Ramazol Black B, together with the polyvinylpyrrolidone binder and a non-ionic surfactant to prepare the ink and then transfer printing it onto the hydrophilic contact lens to form the tinted lens with the desired pattern. The reactive dye is supposed to be covalently bonded with the lens materials after subsequent immersion in the basic solution. Yet no performance detail of the [[tinted]] tinted lens is disclosed. In addition, the method is tedious and has the shortage similar to that present in the soaking-to-fix techniques.

Page 3, amend paragraph [0009] as:

[0009] Many patents including ~~include~~ U. S. Pat. Nos. 4559059, 4468229, 4157892, 4891046, 4553975, 4929250, 5292350, and 5480927 propose the lens tinting method by soaking the formed lens together with the reactive dye in the alkaline solution to chemically bond the dyes with the lens materials. The reactive tinting dye can either be premixed with the monomer mixtures before the polymerization step or be added to the basic solution after the lens is polymerized. Regardless of different reactive dyes and procedures proposed in these patents, they are usually time-consuming and require multiple steps, such as neutralization, extraction, and rinsing steps to tint the lens.

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Additionally, the processing variables should be carefully controlled to prevent uneven dispersion and colorization.

Pages 3-4, amend paragraph [0010] as:

[0010] A more promising method to add the desirable color to the lens is to covalently bond the monomer or prepolymer with the reactive dye first and then introduce this functionalized precursor to the mold and cure. This technique will greatly alleviate the processing problems described in soaking-to-fix methods. A few of patents, for example, U. S. Pat. Nos. 4252421, 5944853, 5938795, 5871675, 6149692, 4795794, and 6162844, use the aforementioned technique to chemically fix the dye with the lens forming materials before the polymerization step. The differences among these patents are mainly on types of reactive dye and precursor reacted. Although advantages are obtained in these patents, some patents still have problems such as the low yield and tedious purification step. For example, a vinyl-sulfone type reactive dye (C. I. Reactive Black 5) that reacted with the hydroxyethyl methacrylate to prepare the dye-monomer compound with no activating step used is disclosed in U. S. Pat. No. [[Nos.]] 5944853 but a very low yield is obtained. This dye-monomer compound is not used to prepare the soft contact lens as described in U. S. Pat. No. [[Nos.]] 5938795 from the same inventors of U. S. Pat. No. [[Nos.]] 5944853.

Page 4, amend paragraph [0014] as:

[0014] Another object of the present invention is to provide an improved method to incorporate reactive coloring agent into a lens that has a great color fastness and does not

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leach or degrade after multiple autoclave sterilization. This outstanding durability results ~~is resulted~~ from the property that the invented reactive tinting compound is capable of covalently bonding with the lens forming materials during cure and has a great thermal stability in the polymeric backbones.

Page 6, amend paragraph [0020] as:

[0020] The first compound which is a hydrophilic vinylic monomer containing hydroxyl or amine group is reacted with the second dye compound to prepare the reactive tinting compound with one reactive vinyl group. The preferred first compound is a comonomer used to prepare ~~prepared~~ hydrophilic soft contact lens and may be 2-hydroxyethyl methacrylate (HEMA), hydroxyethyl acrylate, methacrylamide, acrylic acid, vinyl pyridine, N-vinylpyrrolidone, glycerol methacrylate and the like.

Page 12, amend paragraph [0042] as:

[0042] The tensile properties of the lens are measured ~~[[with]]~~ using an Instron at a strain rate of 50 mm/min. The specimen with the desired size and shape is die-cut from the hydrated lens and the cross sectional area of the specimen is measured. The tensile strength and strain obtained are also shown in Table 1.